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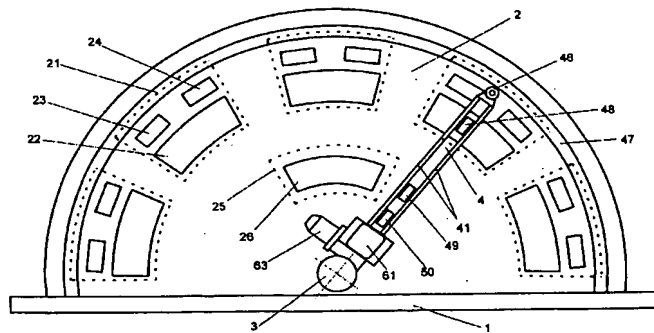
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(54) Title: APPARATUS FOR PLAYING GAME OF CARDS



(57) Abstract: An apparatus for playing card game, comprising a half-round gambling table (2), having multiple player's fields (21) formed in the plate of the gambling table (2) and a dealer's field (25), a radial dealer arm (4) is arranged under the plate of the gambling table (2) and pivotably supported on a vertical shaft (3) placed in the centre of curvature of the half-round gambling table (2), at the end of the dealer arm (3) near the shaft a card magazine (61) and a dealing device (65) are arranged, on the dealer arm an endless belt-conveyor (41) is supported having a horizontal carrying surface extending between the card magazine (61) and the outer end of the dealer arm (4), each player's fields (21) contain a card showing window (22), a display (24) and a keyboard, the outlines of the card showing windows are fitted to the sizes of the cards, the cards are of soft magnetic sheet, the lower edges of the card showing windows (22) are provided with permanent magnets (27), two card lifting devices (48, 49) are mounted onto the dealer arm (4), aligned with the card showing windows (22) of the player's field, and with the card showing window (26) of the dealer's field (25), respectively, implemented with electromagnets, a drive (45) producing a pivot movement of the dealer arm (4), a driving drum (44) moving the belt-conveyor (41), a drive moving the card magazine (63), the dealing devices (65) of the cards (62), the electromagnets of the card lifting devices (48, 49), as well as the card identifying sensor (50) are connected to and controlled by a computer (7).

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## Apparatus for playing game of cards

**Technical field**

The object of the invention is an apparatus for playing game of cards, having a half-round form gambling table, along the circumference of the gambling table at least one player's field is formed in the plate of the gambling table and a dealer's field is arranged as well.

**Background Art**

Several computer programs known for playing game of cards, which are able to play the well known gambles like Black-Jack, Poker, etc. With these computer-gambles the gambling table is displayed on a monitor and the role of the dealer is performed by the programmed computer. The bets and the starting of the game are controlled by the player by means of a mouse or using the keyboard of the computer.

An apparatus for handling and shuffle game-cards is known from the WO-96/04969 international publication, which is used in casinos to store, shuffle and deal the cards. This apparatus has an inserting opening to receive a deck of cards, from which a roller system forwards the cards to a card magazine in such a manner, that a lifting device lifts a part of the cards at a random place of the cards being already in the magazine and a roller system moves a card into the so arising interspace. This process is repeated until each of the cards are inserted into the card magazine. Hereby the shuffle of the card deck is performed. The dealing of the cards is performed by forwarding the cards picked from the bottom of the card stack successively by a further roller system to a dispensing hole. This apparatus deals the cards reliably and randomly. The cards appearing successively in the dispensing hole are handed over according to the rules one by one, by the casino personnel, the dealer to

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the individual gamblers. Thus the presence of the person of the dealer is still necessary.

The object of the invention is to provide an automatic apparatus for playing a card game, by means of which, as well as the traditional card games controlled by humans in a casino, the card games can be played but there is no need for the person of the dealer.

### **Disclosure of Invention**

This object is achieved by an apparatus defined in the introduction in such a manner, that a radial dealer arm is arranged under the plate of the gambling table and pivotably supported on a vertical shaft placed in the centre of curvature of the half-round gambling table, at the end of the dealer arm near the shaft a card magazine and a dealing device are arranged. On the dealer arm an endless belt-conveyor is supported having a horizontal carrying surface parallel to the plate of the gambling table extending between the card magazine and the outer end of the dealer arm. Each player's fields contain a card showing window, a display and a keyboard. The outline of the card showing windows is fitted to the sizes of the cards, which cards are of soft magnetic sheet. The lower edges of the card showing windows being at the lower side of the plate of the gambling table provided with permanent magnets, two card lifting devices are mounted onto the dealer arm, the one is in a radial distance of and aligned with the card showing windows of the player's field, the other is in a radial distance of and aligned with the card showing window of the dealer's field, implemented with electromagnets. A drive producing pivot movement of the dealer arm, a driving drum moving the belt-conveyor, a drive moving the card magazine, the dealing devices of the cards, the electromagnets of the card lifting devices, as well as the card identifying sensor are connected to and controlled by a computer.

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According to an advantageous embodiment of the invention, the belt-conveyor consists of two parallel belts in distance laterally, which distance is at least slightly larger than the width of the lifting plate of the card lifting device.

Preferably, each of the cards are provided with a unique card identifying mark and a card identifying sensor sensing the identifying mark of the respective cards. The identifying sensor reads the identifying mark of the respective card carried by the belt conveyor and being in the vicinity of the sensor to identify the respective cards. The output of the card identifying sensor is connected to the appropriate input port of the computer.

In a further advantageous embodiment of the invention, the cards are arranged in the card magazine in a vertical stack, and the card magazine has a lifting device.

The rotating drive at the outer end of the dealer arm is preferably arranged under the plate of the gambling table consists of a friction segment and a friction wheel engaged with the friction segment driven by an electric motor mounted to the dealer arm.

According to a variation, the rotating drive at the outer end of the dealing arm arranged under the plate of the gambling table consists of a toothed segment and a toothed wheel engaged with the toothed segment driven by an electric motor mounted to the dealer arm.

The apparatus according to the invention will be explained in details based on the preferred embodiment shown in the drawing.

#### **Brief Description of Drawings**

- Fig. 1 is a schematic bottom view of the apparatus according to the invention;
- Fig. 2 is a schematic side sectional view taken in the center line of the apparatus shown on the Fig. 1.

**Best Mode for Carrying Out the Invention**

The bottom view of the apparatus according to the invention is shown on Fig. 1. The apparatus has a gambling table 2 having a half-round form, usual with card games, which is mounted on a frame 1. The gambling table 2 can be of transparent material, for example glass or any known transparent plastic material suitable for this purpose. In the centre of curvature of the half-round form an essentially vertical shaft 3 is arranged, which is secured to said frame 1 of the apparatus.

Under the plate of the gambling table 2 a dealer arm 4 is pivotably mounted to the shaft 3, which is shown on the Fig 1 in a pivoted position in relation to the symmetry plane, but on Fig. 2 - for sake of better understanding - it is shown in the section plane. The dealer arm 4 is extending up to the rim of the half-round gambling table 2. The dealer arm 4 is coupled through a friction gear 46 driven by a drive 45 to the inner surface 47 of a flange mounted to the rim of the half-round gambling table 2. On the inner surface 47 of the flange there is a position sensor (not shown) for sensing the position of the dealer arm 4, by means of which the pivot rotation of the dealer arm 4 around the shaft 3 can be controlled to the desired position.

On the dealer arm 4 a belt-conveyor 41 is mounted. Under the gambling table 2, on the upper side of the dealer arm 4, parallel thereto a horizontal section of the belt-conveyor is extending. The belt-conveyor 41 is guided at the ends of its horizontal section by two guide-pulleys 42, 43. In addition, the belt is looped around a driver drum 44, too. The belt-conveyor 41 consists of two parallel and displaced belt branches.

Along the circumference of the gambling table 2 a multiple of player's fields 21 are provided, which include a window 22 the size of which is matched to the size of the cards 62 used. Next to each of the 22 windows a display 24 is fitted into the plate of the gambling table 2. A data input means, preferably a keyboard 23 belongs to each of the player's fields 21.

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On the plate of the gambling table 2, close to the shaft 3 a dealer's field 25 is formed, consists of a window 26 built into the plate of the gambling table 2.

On the dealer arm 4 card lifting devices 48 and 49 are arranged, which are placed to a radial distance in accordance with the distance between the window 22 of the player's field 21 and the window 26 of the dealer's field 25. On the edges 27 of the windows 22 and 26 being on the lower side of the plate of the table permanent magnets 27 are arranged. The holding plates 51 and 52 of the card lifting devices 48 and 49 respectively, are formed with electromagnets.

The lateral distance between the two parallel branches of the belts of the belt-conveyor 41 is at least slightly larger than the width of the holding plates 51 and 52 of the card lifting devices 48 and 49, so the holding plates 51 and 52 can pass between the said parallel branches when lifting the individual 62 cards.

On the dealer arm 4, between the belt-conveyor 41 and the shaft 3 a card handling unit 6 is arranged, having a card magazine 61 in which cards 62 of soft magnetic material, for example of iron plate, are stacked in a staple, one above the other. The card magazine 61 can be moved vertically by a lifting device 64 mounted onto the dealer arm 4. A dealing device 65, which can be implemented as a pusher, is placed between the card magazine 61 and the shaft 3, which is mounted also to the dealer arm 4. The side walls of the card magazine 61 is open towards the dealing device 65 on the one hand and towards the belt-conveyor 41 on the other, so the dealing device 65 can push a card 62 from the card magazine 61 to the belt-conveyor 41 at a respective height.

By the side of the horizontal part of the belt-conveyor 41, near to the card magazine 61 a card identifying sensor 50 is arranged. Each of the cards 62 are provided with an identifying mark.

The drive 45 of the dealer arm 4, the driving drum 44 of the belt-conveyor 41, the card lifting devices 48 and 49, their electromagnets, furthermore the card magazine drive 63, the dealing device 65, the displays 24, the keyboards 23 and the output of the card identification sensor 50 are

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connected to a computer 7, which controls the recording of the bets, the displaying of the results, the moves of the apparatus, the dealing of the cards and their withdraw, the evaluation and displaying the results in accordance with the rules of the game.

When playing the game the players being at the gambling table 2 can put their bets using the keyboard 23, then the computer 7 directs the dealer arm 4 to pivotably move to each player's place in succession. The card magazine 61 moves vertically by means of the lifting device 64, stops at a random height of a card 62, for which the dealing device 65 pushes a card 62 onto the belt-conveyor 41 through the open side of the card magazine 61. Following this the movement of the belt-conveyor 41 starts, driven by the driving drum 44 and forwards a card 62 to the window 22 of a player, whilst the card identifying sensor 50 reads the data from each card 62 passing in its vicinity and forwards these data to the computer 7. Under the window 22 the card lifting device 48 lifts up the card 62 from the belt-conveyor 41. The lifted card 62, made for example of iron plate, is clamped to the window 22 by means of the permanent magnet 27 arranged on the lower edge of the window 22.

During the dealing of the cards 62 this process repeats with each player's field 21 and with the 25 dealer's field. Finally, the computer 7 evaluates the game on basis of the data received from the card identifying sensor 50 and from the data of the player's fields 21 and displays the results on the displays 24, records and stores the winnings for all players or subtracts the losses from the stored bets belong to each player.

When the game is over, the cards 62 dealt will be picked up and collected by the apparatus in such a manner, that the card lifting devices 48 and 49 rise to the cards 62 clamped by the permanent magnets 27, the electromagnets of the card lifting devices 48 and 49 are activated and detach the cards 62 from the permanent magnets 27, overcoming their attraction force. After having detached the cards 62 the card lifting devices 48 and 49 will descend to their default positions and place the detached cards 62 onto the belt-conveyor 41, hereupon the computer 7 controls electromagnets to switch off and the belt-conveyor 41 carries said card 62 to the card magazine 61.

Having completed this process, the apparatus is ready to a new game.

The dealing of the cards 62 in the given exemplary embodiment can be realized in three different methods in accordance with the program used in the computer 7. In the first mode the drive of the card magazine 63 moves the lifting device 64 to a random position, so a random card 62 being in the card magazine 61 will appear in front of the dealing device 65. In a second mode, while collecting the cards 62 the lifting device 64 moves to a random position for receiving a card 62, so each of the cards 62 get in a random position in the card magazine 63. In a third mode, the former two variants are used simultaneously, that is the card magazine 63 is moved randomly both when dealing and during collecting the cards 62.

For dealing and handling the cards not only the above disclosed card handling unit 6, but several other known card dealing apparatus can be used. One of the several possibilities is to use the solution disclosed in the international patent specification No. WO9604969, which relates to manipulation and dealing cards.



## Claims

## 1. Apparatus for playing card game, comprising

- a half-round gambling table (2),
- along the circumference of the gambling table (2) at least one player's field (21) is formed in the plate of the gambling table (2);
- a dealer's field (25),

characterized in that

- a radial dealer arm (4) is arranged under the plate of the gambling table (2) and pivotably supported on a vertical shaft (3) placed in the centre of curvature of the half-round gambling table (2),
- at the end of the dealer arm (4) near the shaft (3) a card magazine (61) and a dealing device (65) are arranged,
- on the dealer arm (4) an endless belt-conveyor (41) is supported having a horizontal carrying section extending parallel to the plate of the gambling table (2) between the card magazine (61) and the outer end of the dealer arm (4),
- each player's fields (21) contain a card showing window (22), a display (24) and a keyboard,
- the outlines of the card showing windows (22) are fitted to the sizes of the cards (62),
- the cards (62) are of soft magnetic sheet,
- the lower edges of the card showing windows (22, 26) being at the lower side of the plate of the gambling table (2) provided with permanent magnets (27),
- two card lifting devices (48, 49) are mounted onto the dealer arm (4), the one is in a radial distance of and aligned with the card showing windows (22) of the player's field, the other is in a radial distance of and aligned with the card showing window (26) of the dealer's field (25), implemented with electromagnets,

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- a drive (45) producing a pivot movement of the dealer arm (4), a driving drum (44) moving the belt-conveyor (41), a drive moving the card magazine (63), the dealing devices (65) of the cards (62), the electromagnets of the card lifting devices (48, 49), as well as the card identifying sensor (50) are connected to and controlled by a computer (7).

2. An apparatus according to claim 1, where the belt-conveyor (41) consists of two parallel belts in distance laterally, which distance is at least slightly larger than the width of the holding plate (51, 52) of the card lifting device (48, 49).

3. An apparatus according to claim 1, where each of the cards (62) are provided with a unique card identifying mark and a card identifying sensor (50) sensing the identifying mark of the respective cards (62) is placed in the vicinity of the horizontal section of the belt-conveyor (41) carrying the card (62) to identify the respective cards (62), the output of the card identifying sensor (50) is connected to the appropriate input port of the computer (7).

4. An apparatus according to claim 1, where the cards (62) are arranged in the card magazine (61) in a vertical stack, and the card magazine (61) has a vertically lifting device (64).

5. An apparatus according to claim 1, where the rotating drive (45) at the outer end of the dealer arm (4) arranged under the plate of the gambling table (2) consists of a friction segment (47) and a friction wheel (46) engaged with the friction segment (47) driven by an electric motor mounted to the dealer arm (4).

6. An apparatus according to claim 1, where the rotating drive (45) at the outer end of the dealing arm (4) arranged under the plate of the gambling table (2) consists of a toothed segment (47) and a toothed wheel (46) engaged with the toothed segment (47) driven by an electric motor mounted to the dealer arm (4).

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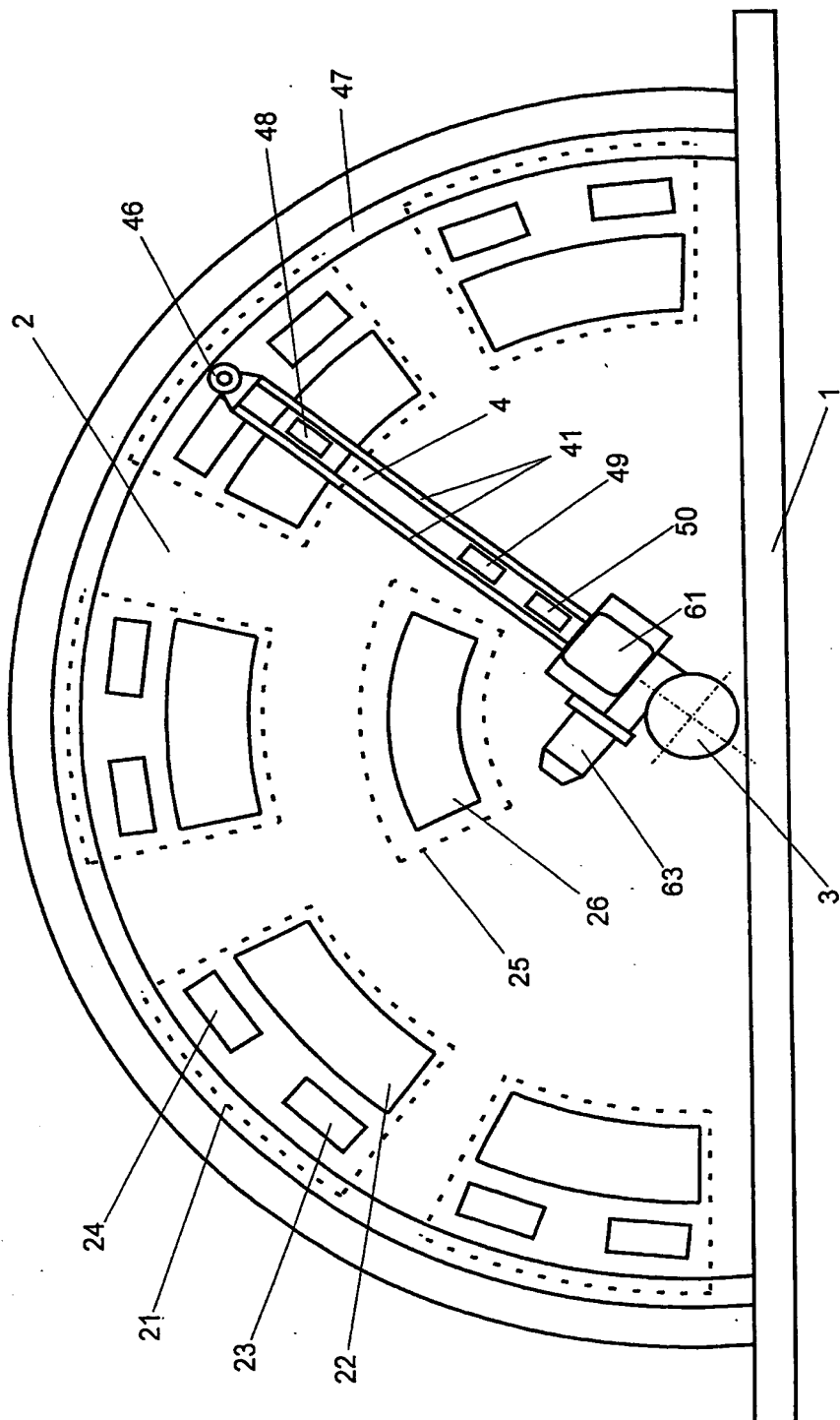
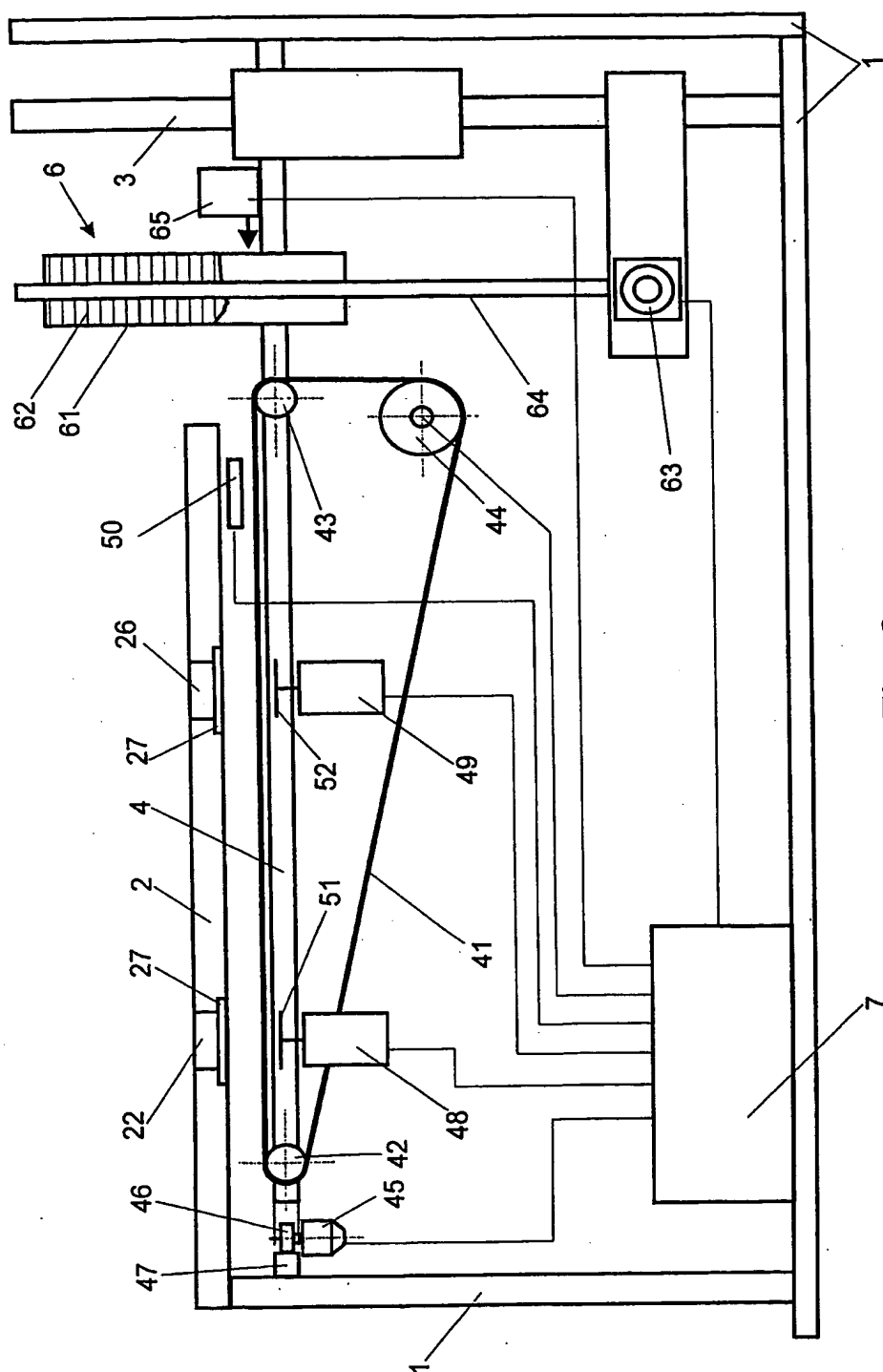


Fig. 1

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## INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER  
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## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 361 044 B1 (BLOCK LAWRENCE M ET AL) 26 March 2002 (2002-03-26) column 2, line 46 -column 3, line 34 column 4, line 53 -column 5, line 67 column 7, line 59 -column 8, line 65; claims 1,16; figures 1-11,19	1-6
A	DE 101 39 570 A (ICKING PAUL) 20 February 2003 (2003-02-20) paragraphs '0008!-'0011!,'0032!-'0042!,'0048!; claims 1,14; figures 1,8	1
A	DE 591 189 C (FRANZ REICHENBECHER;HOFFMANN GERHARD) 17 January 1934 (1934-01-17) the whole document	1

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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INTERNATIONAL SEARCH REPORT  
Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6361044	B1	26-03-2002	NONE	
DE 10139570	A	20-02-2003	DE 10139570 A1	20-02-2003
DE 591189	C	17-01-1934	NONE	